

A Finely Crafted O'Brien Unit 1 Test

Technology Aided Section: You may use a calculator or applications on your laptop- **no internet or notes**. Use a pencil. Show all work and circle your answer. Use your time wisely; you will be able to earn additional credit after the timed portion of the test by completing Supercorrections. When you finish, you can come up to get the non-technology part—you may continue to work on both sections without the aid of technology.

1. Solve each equation. Check your answer.

a. $8x + 4 = 2x - 32$

b. $\frac{x}{3} - 2 = 16$

2. Write the equation of a line that has:

a. slope of 2 and passes through $(-3, -5)$

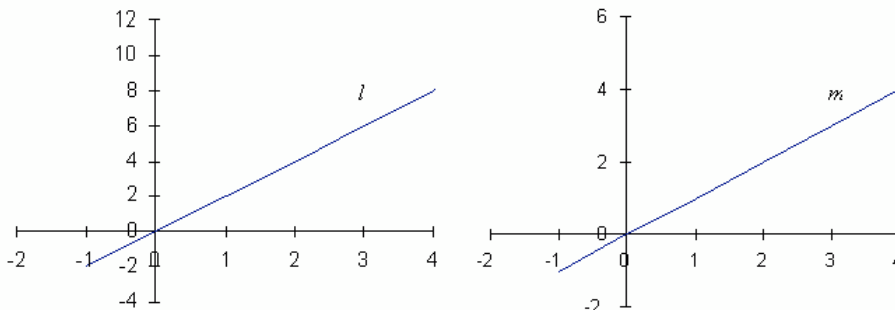
b. passes through $(3, 4)$ and $(3, 6)$

3. List **one positive number x** and **one negative number x** that solves each absolute value inequality.

a. $|6x - 4| > 20$

b. $|2x + 6| \leq 10$

4. Do lines l and m have the same slope? Why or why not?



5. Write three linear equations whose graphs form a triangle with an area of 6 square units.

6. Alex solves the inequality $2 - 3x > -10$ with the working at right:

- a. As you can see, Alex's solution is $x > 4$. This solution is an infinite set of numbers. Choose one number from this solution $x > 4$ and show that it does not work in the inequality $2 - 3x > -10$.

$$\begin{array}{r} 2 - 3x > -10 \\ -2 \qquad -2 \\ \hline -3x > -12 \\ \div (-3) \quad \div (-3) \\ \hline x > 4 \end{array}$$

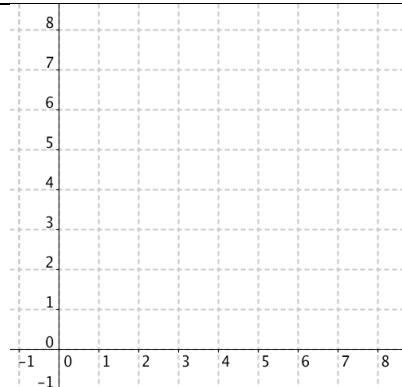
- b. Fix Alex's "solution" to $2 - 3x > -10$.

7. Create a scatter plot for the data in the table below. Use Logger Pro to find the least squares line (line of best fit).

x	2	5	3	8	6
y	4	6	5	7	6

Least squares line equation:

Is the correlation positive or negative?



8. Solve the inequality/equation any way you'd like (algebra or graph or best-both!).

a. $|2x - 8| \leq 6$

b. $|5 - x| = -3$

NON TECHNOLOGY SECTION

Name: _____

9. Solve each inequality and graph on a number line.

a. $2(4x - 5) < 6x - 6$

b. $5 - x \geq 3$ or $-2 + 4x \geq 10$



10. If y varies directly as x and $y = 3$ when $x = 7$, find:

a. the constant of variation

b. the direct variation equation

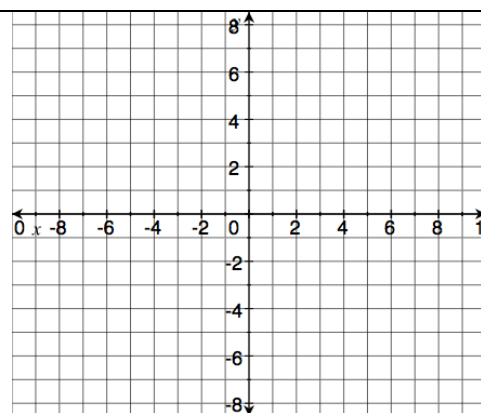
c. y when x is 63

11. Write an equation for the line that is perpendicular to $2x + 3y = 4$ and passes through $(-5, 9)$.

12. Complete the table with four values and a graph for the equation

$$y = -\frac{3}{4}x + 4$$

x	0		8	
y		0		7

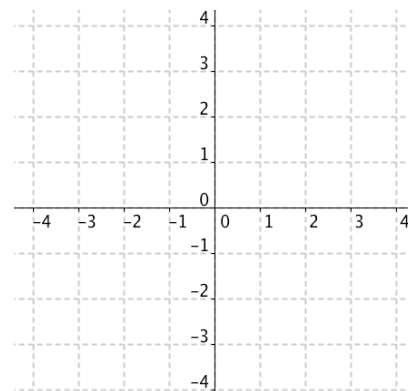


13. Solve each proportion.

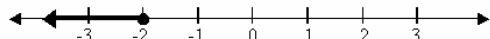
a. $\frac{x}{3} = \frac{2}{11}$

b. $\frac{3x}{4} = \frac{x+1}{2}$

14. Graph the lines $y = 2x - 3$ and $y = -\frac{1}{2}x + 2$ at right. Briefly explain/show how the graph can help solve the equation $2x - 3 = -\frac{1}{2}x + 2$.



15. Write a compound inequality (using either AND or OR) that could have the graph below. Explain why your compound inequality has the given graph.



16. Solve for y and then determine values for B and C such that the line $2x - By = C$ has both a negative slope and a negative y -intercept.

Go back and check your answers- the fewer Supercorrections, the better!